



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,080	12/11/2003	Pascual Perez	A36102-PCT-USA-A	9528
21003	7590	12/12/2007		
BAKER BOTTS L.L.P. 30 ROCKEFELLER PLAZA 44TH FLOOR NEW YORK, NY 10112-4498			EXAMINER KUMAR, VINOD	
			ART UNIT 1638	PAPER NUMBER
			NOTIFICATION DATE 12/12/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DLNYDOCKET@BAKERBOTTS.COM

Office Action Summary

Application No.

10/733,080

Applicant(s)

PEREZ ET AL.

Examiner

Vinod Kumar

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-5,7,9 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,9 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/28/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 31, 2007 has been entered.

Status of Objections and Rejections

2. Claims 1-5, 7, 9, and 11-14 are pending.
3. Claims 6, 8, 10, and 15-21 are canceled.
4. Claims 1-5, 7, 9, and 11-14 are examined on merits in this Office action.
5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. All previous rejections have been withdrawn in view of claim amendments filed in the paper of September 18, 2007.
7. Rejection of claim 11 under 35 U.S.C. 112, 2nd paragraph has been withdrawn in light of claim amendment filed in the paper of October 31, 2007.
8. Rejection of claims 1-5, 7, and 11-14 under 35 U.S.C. 112, 1st paragraph has been withdrawn in light of claim amendments filed in the paper of October 31, 2007.

9. Rejections of claims 1-5, and 7 under 35 U.S.C. 102(b) have been withdrawn in light of claim amendments filed in the paper of October 31, 2007.

Election/Restriction

10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

11. Claims 1, 2-3, 7, and 11-13 are objected to because of the following informalities:

In claim 1, line 3, it is suggested to change "contacting" before "a maize" with --transforming--.

In claim 1, it is suggested to delete (i) and (ii) reference characters because these are unnecessary.

In claim 1, part (c), the recitation "the R-nj chromosomal locus (an R-nj::AC allele)" does not read properly. It is suggested to change this recitation to --an R-nj::AC allele of the R-nj chromosomal locus--.

In claim 1, part (c), last line, it is suggested to change "such that an F1 generation is obtained" to --and obtaining an F1 generation--.

In claim 1, part (d), the recitation "from the sequence encoding a phenotypic marker for excision based on expression of the phenotypic marker for excision expression" does not read properly. It is suggested to change this recitation to --thereby producing said anthocyanin containing sectors--.

In claim 1, part (d), line 4, change "plants" before "containing" to --plant or cell--.

In claim 1, last line, the recitation "foreign" before "ancillary" should be deleted because the preamble lacks such recitation.

In claims 2-3, line 1, insert --ancillary-- before "selection".

In claim 3, the recitations "nptII" and "bar" in line 2 should be italicized.

In claim 7, it is suggested to change "plants or cells" before "in" to --plant or cell--.

In claim 7, line 1, the recitation "progeny" before "maize" should be deleted because step (d) does not recite "progeny".

In claim 11, change "said line" to --the second parental maize plant of step (c)--.

In claim 11, line 2, the recitation "made" before "homologous" is unnecessary and thus should be deleted.

In claim 12, line 1, the recitation "progeny" must be deleted because the step (d) does not recite "progeny".

In claim 12, insert --and-- before "obtaining" of last line.

In claim 12, it is suggested to change "sowing based on" before "there" to --from--.

In claim 13, line 3, insert --obtained from the F1 generation-- before "F1 embryo,".

Appropriate action is required.

Specification

12. The disclosure is objected to because of the following informalities:

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

For example, see page 27, last line of paragraph 0113.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. Claims 13-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in its recitation "The T-DNA" because there is insufficient antecedent basis for this limitation in the claim.

Claim 14 is rejected because it fails to overcome the deficiency of claim 13.

Appropriate action is required.

Claim Rejections - 35 USC § 103

14. Claims 1-5, 7, 9, 11-13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez et al. (PCT, WIPO, Publication No. WO 98/38323 A, Published

September 3, 1998, Applicant's IDS, an English equivalent published as US Patent Application No. US2002/0157129A1 on 24 October 2002 in view of Dellaporta et al. (Molecular cloning of the maize R-nj allele by transposon tagging with Ac, pp. 263-282, *in* Chromosome structure and function: Impact of new concepts, edited by J.P. Gustafson and R. Appels, Plenum Press, New York), Ishida et al. (Nature Biotechnology, 14(6):745-750, 1996), and Yoshida et al. (Journal of Bioscience and Bioengineering, 90:353-362, 2000).

Pascual et. al. teach a method for obtaining a transgenic maize plant containing coding sequence of interest (male sterility, AMS) that is free of foreign ancillary sequence, wherein the method comprises the following steps: (a) transforming at least one active transposase-free maize plant cell with a transformation vector comprising two expression cassettes, one of which contains a nucleotide sequence of interest (male sterility, AMS) another a nucleotide sequence coding for a selection marker (nptII, antibiotic resistance or bar, herbicide resistance) flanked by the mobilisable sequences of a transposon (Ac/Ds), wherein said expression cassette containing a nucleotide sequence of interest (i) is outside said transposon element; (b) selecting the transformed plants using said selection marker; (c) cross-breeding a transformed plant with another plant from a line containing, in the genome thereof, a gene coding for an endogenous active transposase (Ac) and located within a phenotypic excision marker sequence encoding GUS, in order to produce an F1 individual or any subsequent progenies; (d) selecting, from the F1 generation, cells or individuals carrying the gene of interest and free of foreign ancillary sequences; (e) regenerating plants using the cells

or individuals selected in step (d). See in particular, claims 4-12; examples 1-12; figures 1-3, pages 1-16.

Perez et. al. do not teach a R-nj::Ac parental line of maize.

Dellaporta et al. teach a maize line W22 which is homozygous for R-nj::Ac allele. The reference also teaches that inserts of Ac into R-nj is detected on the basis of the presence of variegated aleurone color in the region of the R-nj expressing only in the crown portion of the kernel (seed). The reference also teaches that the endogenous active transposase encodes the active Ac element within said R-nj::Ac allele of the R-nj chromosomal locus such that excision of said Ac element results in the production of anthocyanin-containing sectors on the crown of the seed. The reference also teaches selecting F1 and F2 maize plants displaying somatic or germinal excision of Ac element. See in particular, page 265; page 266; page 267 (1st paragraph); page 270 (4th paragraph); figures 1, 2 and 3.

Ishida et al. teach a method of maize transformation using immature embryos of inbred A188 line. The reference further teaches that immature embryos of inbred line A188 exhibits higher transformation frequency of transgenic plants regenerated from transformed calluses of said immature embryos. The reference further teaches that using embryogenic callus derived from inbred A188 line also resulted in high frequency of fertile corn plants. See in particular, abstract; page 746, table 1; page 747, figure 2; page 746, figure 3, table 3; page 749 through the end of 1st column of page 750.

Yoshida et al. teach a method of making a transgenic plant and selecting the transgenic plant using a nondestructively detectable reporter protein GFP (green fluorescent protein). See in particular, page 154, left column.

At the time the invention was made, it would have been prima facie obvious to one of ordinary skill in the art to modify the method of making a transgenic maize plant containing a coding sequence of interest that is free of ancillary selection marker as taught by Pascual et al., to substitute the second parental maize plant of Pascual et al. with a maize plant as taught by Dellaporta et al. which has within its genome a sequence encoding an endogenous active Ac element transposase.

Thus it would have been obvious and within the scope of an ordinary skill in the art to expect that Dellaporta et al. transposase would have operated on the mobilizable sequence of Pascual et al. second expression cassette with reasonable expectation of success. The F1 selected plants from said modified method would have the endogenous active Ac element transposase excised, thereby producing anthocyanin-containing sectors on the crown of the seed, to identify maize plant or cell containing Pascual et al. coding sequence of interest, but lacking Pascual et al. ancillary selection marker coding sequence with reasonable expectation of success.

One of ordinary skill in the art would have been motivated to do so for the purpose of replacing a non-natural phenotypic marker (GUS) for excision as taught by Pascual et al. with a naturally occurring phenotypic marker (anthocyanin) for excision as taught by Dellaporta et al. to obtain a transgenic plant comprising the coding sequence

of interest, and free from foreign ancillary marker, and foreign phenotypic marker for excision with reasonable expectation of success.

It would have been prima facie obvious to one skilled in the art at the time the claimed invention was made to modify Pascual et. al. method of obtaining a transgenic corn plant containing a coding sequence of interest that is free from foreign ancillary sequence, by using corn inbred line A188 as taught by Ishida et al. The motivation to do so comes from Ishida et al. who teach that transformation of embryogenic callus A188 resulted in higher frequency of fertile transgenic corn plants, compared to embryogenic callus derived from other inbred lines.

It would have been obvious and within the scope of an ordinary skill in the art to use any selective marker in the second expression cassette of Pascual et al. including a coding sequence encoding a nondestructively detectable green fluorescent protein as taught by Yoshida. One of the ordinary skill in the art would have been motivated to do so for the purpose of obtaining primary transformants that could have been visually selected without destroying the transgenic plant.

Thus, the claimed invention as a whole is prima facie obvious over the combined teachings of the prior art.

Conclusion

15. Claims 1-5, 7, 9, 11-13, and 14 are rejected.


Contact Information

Art Unit: 1638

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinod Kumar whose telephone number is (571) 272-4445. The examiner can normally be reached on 8.30 a.m. to 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PHUONG T. BUI
PRIMARY EXAMINER 12/6/07